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FIG.9

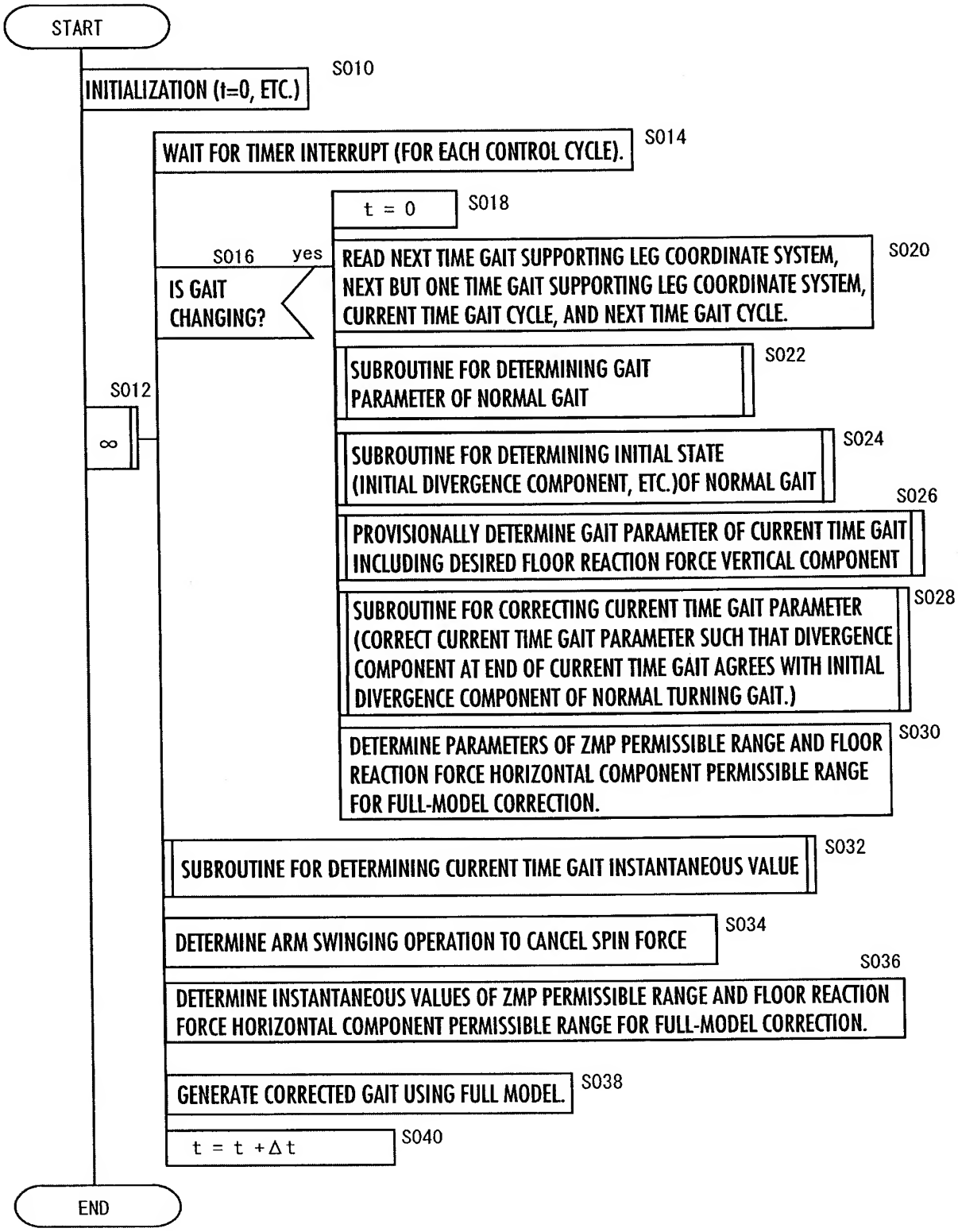
START
INITIALIZATION (t=0, ETC.)
S010
WAIT FOR TIMER INTERRUPT (FOR EACH CONTROL CYCLE).
S014
t = 0
S018
S016
yes
IS GAIT CHANGING?
READ NEXT TIME GAIT SUPPORTING LEG COORDINATE SYSTEM, NEXT BUT ONE TIME GAIT SUPPORTING LEG COORDINATE SYSTEM, CURRENT TIME GAIT CYCLE, AND NEXT TIME GAIT CYCLE.
S020
SUBROUTINE FOR DETERMINING GAIT PARAMETER OF NORMAL GAIT
S022
S012
∞
SUBROUTINE FOR DETERMINING INITIAL STATE (INITIAL DIVERGENCE COMPONENT, ETC.)OF NORMAL GAIT
S024
PROVISIONALLY DETERMINE GAIT PARAMETER OF CURRENT TIME GAIT INCLUDING DESIRED FLOOR REACTION FORCE VERTICAL COMPONENT
S026
SUBROUTINE FOR CORRECTING CURRENT TIME GAIT PARAMETER (CORRECT CURRENT TIME GAIT PARAMETER SUCH THAT DIVERGENCE COMPONENT AT END OF CURRENT TIME GAIT AGREES WITH INITIAL DIVERGENCE COMPONENT OF NORMAL TURNING GAIT.)
S028
DETERMINE PARAMETERS OF ZMP PERMISSIBLE RANGE AND FLOOR REACTION FORCE HORIZONTAL COMPONENT PERMISSIBLE RANGE FOR FULL-MODEL CORRECTION.
S030
SUBROUTINE FOR DETERMINING CURRENT TIME GAIT INSTANTANEOUS VALUE
S032
DETERMINE ARM SWINGING OPERATION TO CANCEL SPIN FORCE
S034
DETERMINE INSTANTANEOUS VALUES OF ZMP PERMISSIBLE RANGE AND FLOOR REACTION FORCE HORIZONTAL COMPONENT PERMISSIBLE RANGE FOR FULL-MODEL CORRECTION.
S036
GENERATE CORRECTED GAIT USING FULL MODEL.
S038
t = t +Δt
S040
END

FIG.11

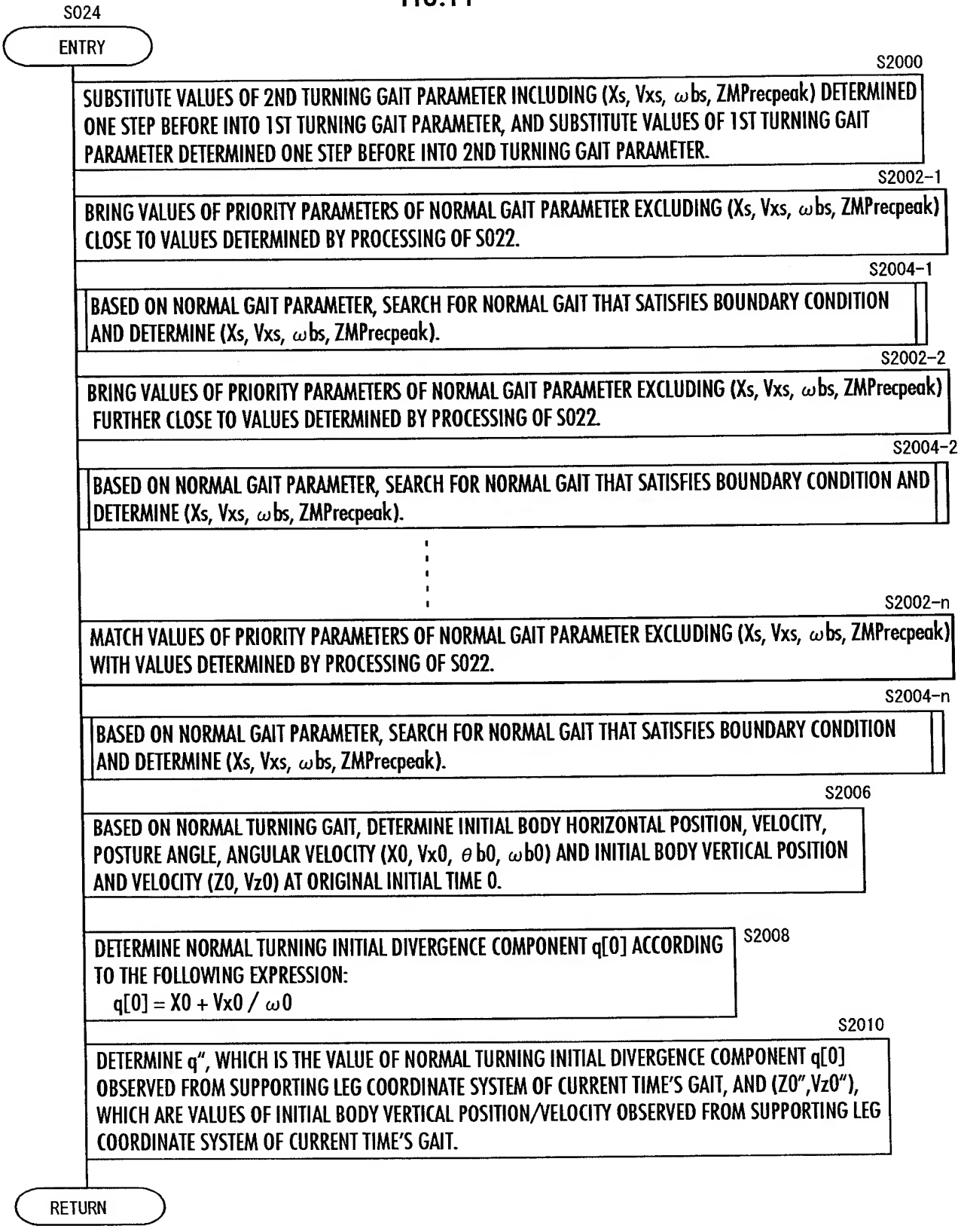
S024
ENTRY
S2000
SUBSTITUTE VALUES OF 2ND TURNING GAIT PARAMETER INCLUDING (Xs, Vxs, ωbs, ZMPrecpeak) DETERMINED ONE STEP BEFORE INTO 1ST TURNING GAIT PARAMETER, AND SUBSTITUTE VALUES OF 1ST TURNING GAIT PARAMETER DETERMINED ONE STEP BEFORE INTO 2ND TURNING GAIT PARAMETER.
S2002-1
BRING VALUES OF PRIORITY PARAMETERS OF NORMAL GAIT PARAMETER EXCLUDING (Xs, Vxs, ωbs, ZMPrecpeak) CLOSE TO VALUES DETERMINED BY PROCESSING OF S022.
S2004-1
BASED ON NORMAL GAIT PARAMETER, SEARCH FOR NORMAL GAIT THAT SATISFIES BOUNDARY CONDITION AND DETERMINE (Xs, Vxs, ωbs, ZMPrecpeak).
S2002-2
BRING VALUES OF PRIORITY PARAMETERS OF NORMAL GAIT PARAMETER EXCLUDING (Xs, Vxs, ωbs, ZMPrecpeak) FURTHER CLOSE TO VALUES DETERMINED BY PROCESSING OF S022.
S2004-2
BASED ON NORMAL GAIT PARAMETER, SEARCH FOR NORMAL GAIT THAT SATISFIES BOUNDARY CONDITION AND DETERMINE (Xs, Vxs, ωbs, ZMPrecpeak).
S2002-n
MATCH VALUES OF PRIORITY PARAMETERS OF NORMAL GAIT PARAMETER EXCLUDING (Xs, Vxs, ωbs, ZMPrecpeak) WITH VALUES DETERMINED BY PROCESSING OF S022.
S2004-n
BASED ON NORMAL GAIT PARAMETER, SEARCH FOR NORMAL GAIT THAT SATISFIES BOUNDARY CONDITION AND DETERMINE (Xs, Vxs, ωbs, ZMPrecpeak).
S2006
BASED ON NORMAL TURNING GAIT, DETERMINE INITIAL BODY HORIZONTAL POSITION, VELOCITY, POSTURE ANGLE, ANGULAR VELOCITY (X0, Vx0, θb0, ωb0) AND INITIAL BODY VERTICAL POSITION AND VELOCITY (Z0, Vz0) AT ORIGINAL INITIAL TIME 0.
S2008
DETERMINE NORMAL TURNING INITIAL DIVERGENCE COMPONENT q[0] ACCORDING TO THE FOLLOWING EXPRESSION:
q[0] = X0 + Vx0 / ω0
S2010
DETERMINE q", WHICH IS THE VALUE OF NORMAL TURNING INITIAL DIVERGENCE COMPONENT q[0] OBSERVED FROM SUPPORTING LEG COORDINATE SYSTEM OF CURRENT TIME'S GAIT, AND (Z0",Vz0"), WHICH ARE VALUES OF INITIAL BODY VERTICAL POSITION/VELOCITY OBSERVED FROM SUPPORTING LEG COORDINATE SYSTEM OF CURRENT TIME'S GAIT.
RETURN

FIG.12

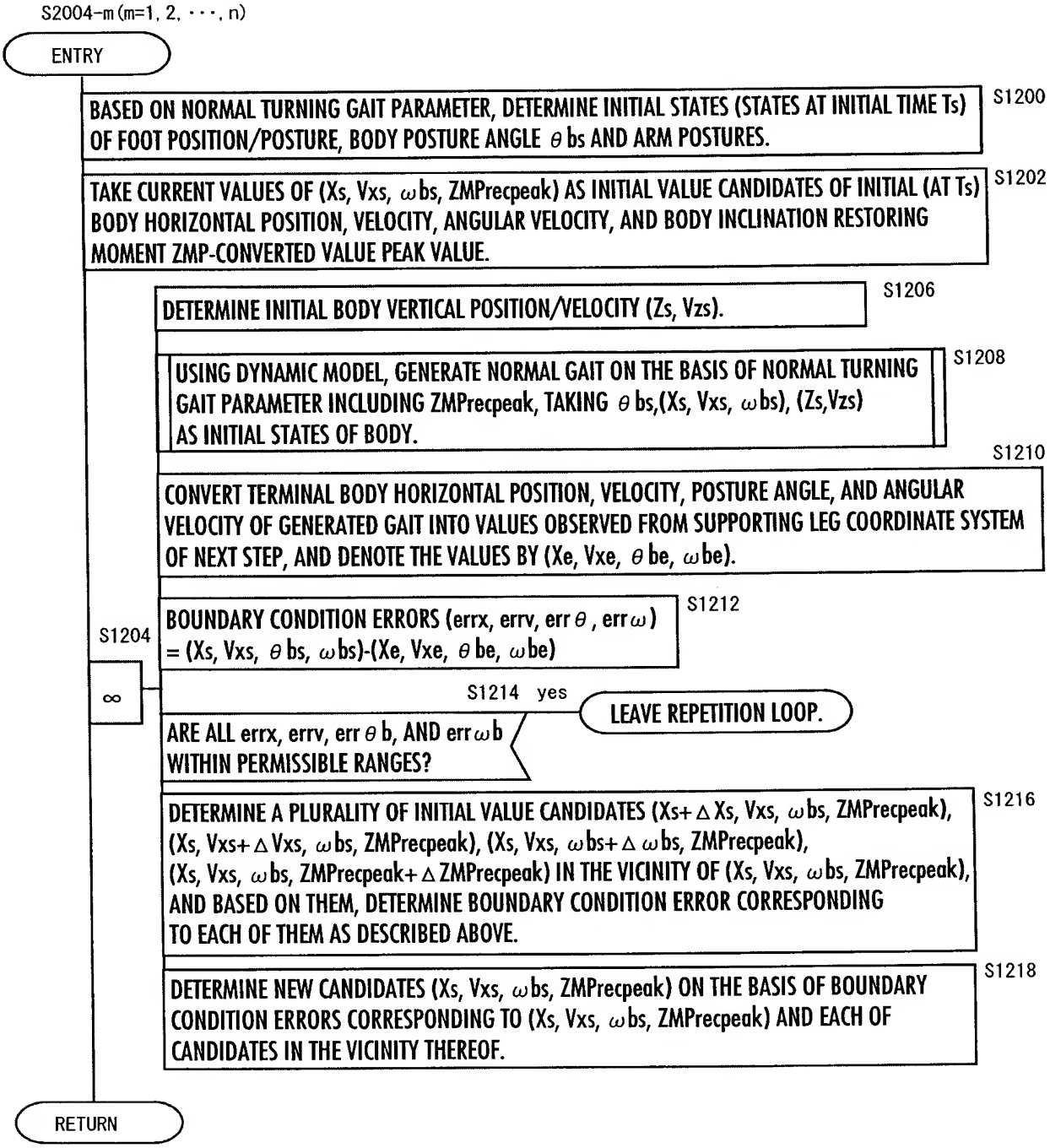
S2004-m(m=1, 2, ・・・, n)
ENTRY
BASED ON NORMAL TURNING GAIT PARAMETER, DETERMINE INITIAL STATES (STATES AT INITIAL TIME Ts) OF FOOT POSITION/POSTURE, BODY POSTURE ANGLE θbs AND ARM POSTURES.
S1200
TAKE CURRENT VALUES OF (Xs, Vxs, ωbs, ZMPrecpeak) AS INITIAL VALUE CANDIDATES OF INITIAL (AT Ts) BODY HORIZONTAL POSITION, VELOCITY, ANGULAR VELOCITY, AND BODY INCLINATION RESTORING MOMENT ZMP-CONVERTED VALUE PEAK VALUE.
S1202
DETERMINE INITIAL BODY VERTICAL POSITION/VELOCITY (Zs, Vzs).
S1206
USING DYNAMIC MODEL, GENERATE NORMAL GAIT ON THE BASIS OF NORMAL TURNING GAIT PARAMETER INCLUDING ZMPrecpeak, TAKING θbs,(Xs, Vxs, ωbs), (Zs,Vzs) AS INITIAL STATES OF BODY.
S1208
CONVERT TERMINAL BODY HORIZONTAL POSITION, VELOCITY, POSTURE ANGLE, AND ANGULAR VELOCITY OF GENERATED GAIT INTO VALUES OBSERVED FROM SUPPORTING LEG COORDINATE SYSTEM OF NEXT STEP, AND DENOTE THE VALUES BY (Xe, Vxe, θbe, ωbe).
S1210
BOUNDARY CONDITION ERRORS (errx, errv, errθ, errω) = (Xs, Vxs, θbs, ωbs)-(Xe, Vxe, θbe, ωbe)
S1212
S1204
∞
S1214 yes
LEAVE REPETITION LOOP.
ARE ALL errx, errv, errθb, AND errωb WITHIN PERMISSIBLE RANGES?
DETERMINE A PLURALITY OF INITIAL VALUE CANDIDATES (Xs+ΔXs, Vxs, ωbs, ZMPrecpeak), (Xs, Vxs+ΔVxs, ωbs, ZMPrecpeak), (Xs, Vxs, ωbs+Δωbs, ZMPrecpeak), (Xs, Vxs, ωbs, ZMPrecpeak+ΔZMPrecpeak) IN THE VICINITY OF (Xs, Vxs, ωbs, ZMPrecpeak), AND BASED ON THEM, DETERMINE BOUNDARY CONDITION ERROR CORRESPONDING TO EACH OF THEM AS DESCRIBED ABOVE.
S1216
DETERMINE NEW CANDIDATES (Xs, Vxs, ωbs, ZMPrecpeak) ON THE BASIS OF BOUNDARY CONDITION ERRORS CORRESPONDING TO (Xs, Vxs, ωbs, ZMPrecpeak) AND EACH OF CANDIDATES IN THE VICINITY THEREOF.
S1218
RETURN

FIG.16

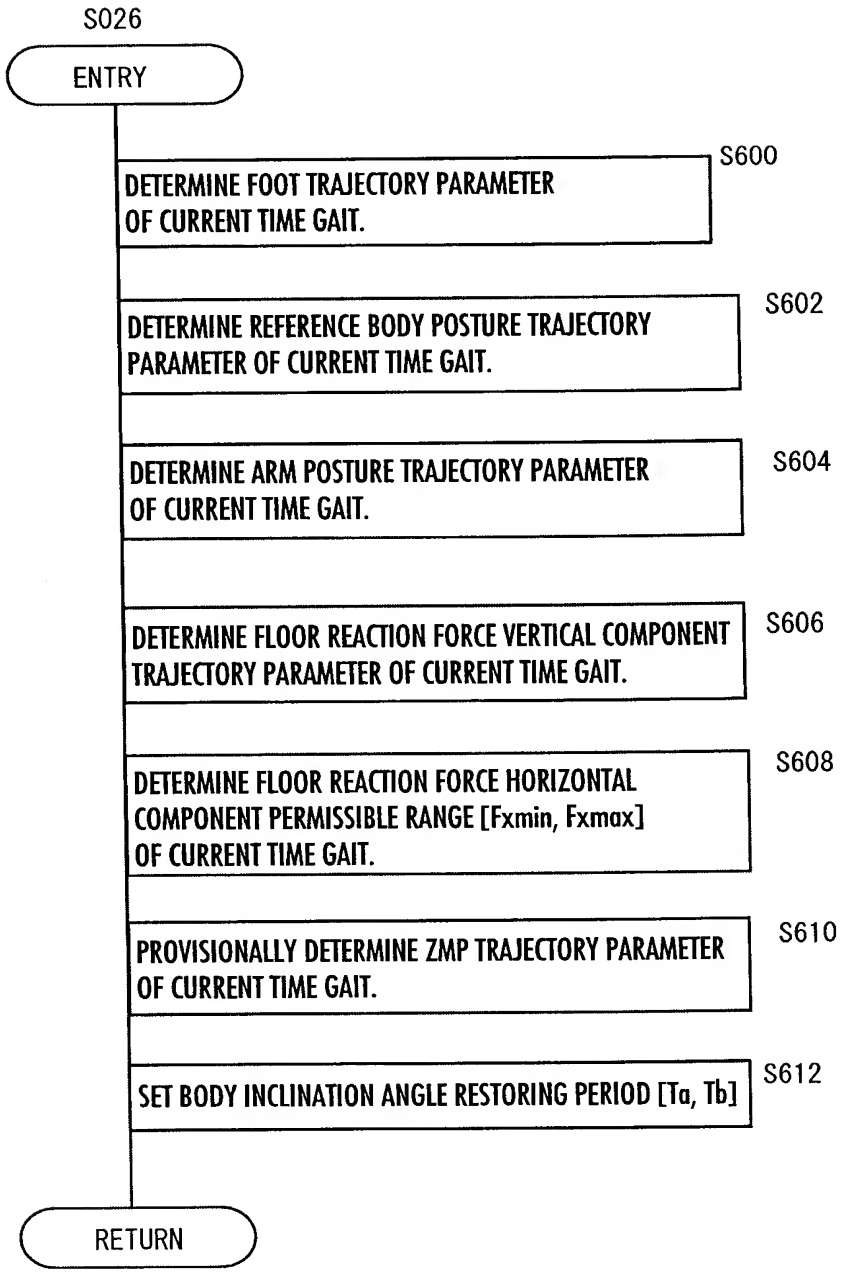
S026
ENTRY
DETERMINE FOOT TRAJECTORY PARAMETER OF CURRENT TIME GAIT.
S600
DETERMINE REFERENCE BODY POSTURE TRAJECTORY PARAMETER OF CURRENT TIME GAIT.
S602
DETERMINE ARM POSTURE TRAJECTORY PARAMETER OF CURRENT TIME GAIT.
S604
DETERMINE FLOOR REACTION FORCE VERTICAL COMPONENT TRAJECTORY PARAMETER OF CURRENT TIME GAIT.
S606
DETERMINE FLOOR REACTION FORCE HORIZONTAL COMPONENT PERMISSIBLE RANGE [Fxmin, Fxmax] OF CURRENT TIME GAIT.
S608
PROVISIONALLY DETERMINE ZMP TRAJECTORY PARAMETER OF CURRENT TIME GAIT.
S610
SET BODY INCLINATION ANGLE RESTORING PERIOD [Ta, Tb]
S612
RETURN

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FIG.18

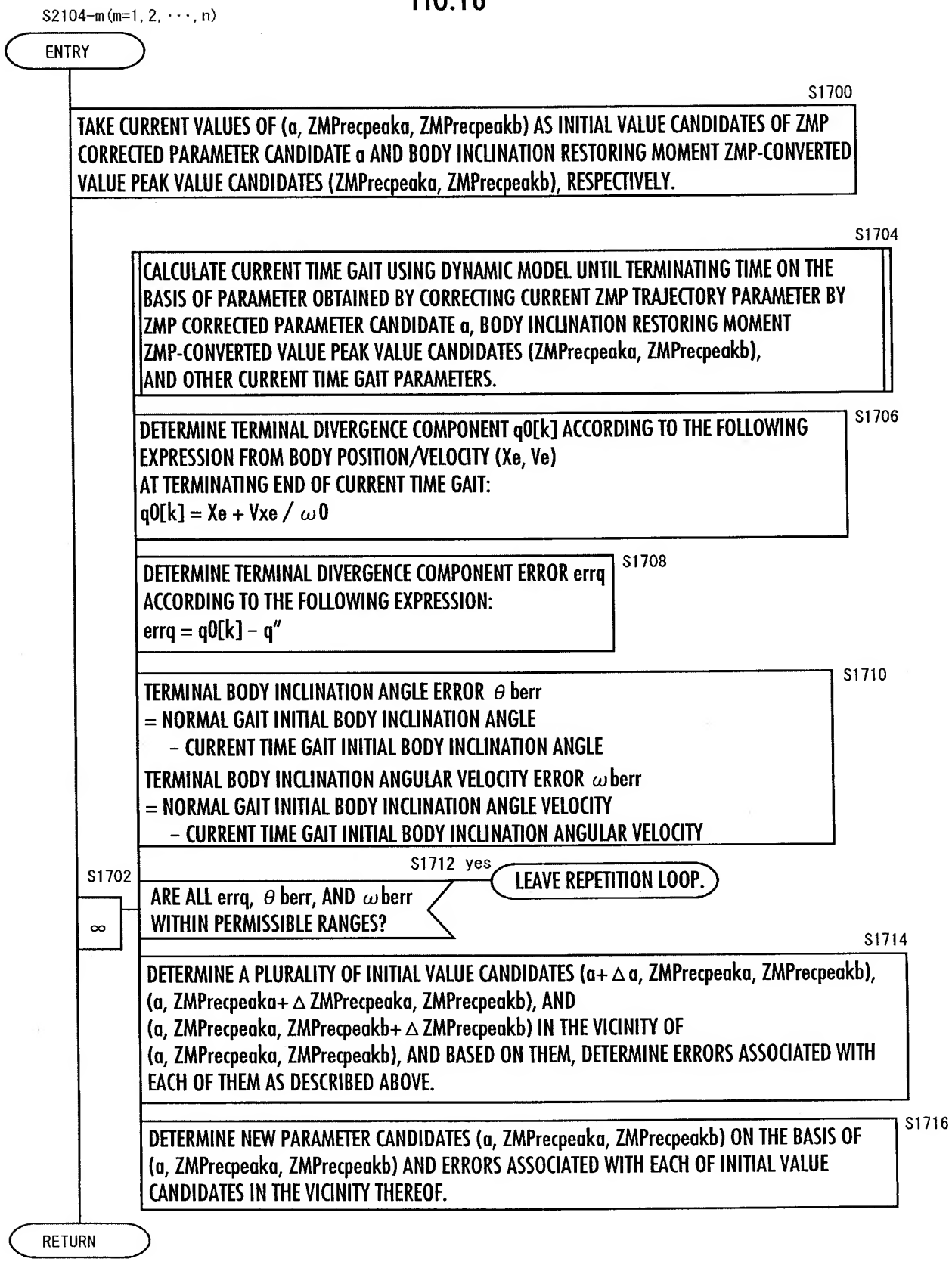
S2104-m(m=1, 2, ・・・, n)
ENTRY
S1700
TAKE CURRENT VALUES OF (a, ZMPrecpeaka, ZMPrecpeakb) AS INITIAL VALUE CANDIDATES OF ZMP CORRECTED PARAMETER CANDIDATE a AND BODY INCLINATION RESTORING MOMENT ZMP-CONVERTED VALUE PEAK VALUE CANDIDATES (ZMPrecpeaka, ZMPrecpeakb), RESPECTIVELY.
S1704
CALCULATE CURRENT TIME GAIT USING DYNAMIC MODEL UNTIL TERMINATING TIME ON THE BASIS OF PARAMETER OBTAINED BY CORRECTING CURRENT ZMP TRAJECTORY PARAMETER BY ZMP CORRECTED PARAMETER CANDIDATE a, BODY INCLINATION RESTORING MOMENT ZMP-CONVERTED VALUE PEAK VALUE CANDIDATES (ZMPrecpeaka, ZMPrecpeakb), AND OTHER CURRENT TIME GAIT PARAMETERS.
S1706
DETERMINE TERMINAL DIVERGENCE COMPONENT q0[k] ACCORDING TO THE FOLLOWING EXPRESSION FROM BODY POSITION/VELOCITY (Xe, Ve) AT TERMINATING END OF CURRENT TIME GAIT:
q0[k] = Xe + Vxe / ω0
S1708
DETERMINE TERMINAL DIVERGENCE COMPONENT ERROR errq ACCORDING TO THE FOLLOWING EXPRESSION:
errq = q0[k] - q''
S1710
TERMINAL BODY INCLINATION ANGLE ERROR θberr
= NORMAL GAIT INITIAL BODY INCLINATION ANGLE
- CURRENT TIME GAIT INITIAL BODY INCLINATION ANGLE
TERMINAL BODY INCLINATION ANGULAR VELOCITY ERROR ωberr
= NORMAL GAIT INITIAL BODY INCLINATION ANGLE VELOCITY
- CURRENT TIME GAIT INITIAL BODY INCLINATION ANGULAR VELOCITY
S1712 yes
LEAVE REPETITION LOOP.
S1702
∞
ARE ALL errq, θberr, AND ωberr WITHIN PERMISSIBLE RANGES?
S1714
DETERMINE A PLURALITY OF INITIAL VALUE CANDIDATES (a+Δa, ZMPrecpeaka, ZMPrecpeakb), (a, ZMPrecpeaka+Δ ZMPrecpeaka, ZMPrecpeakb), AND (a, ZMPrecpeaka, ZMPrecpeakb+Δ ZMPrecpeakb) IN THE VICINITY OF (a, ZMPrecpeaka, ZMPrecpeakb), AND BASED ON THEM, DETERMINE ERRORS ASSOCIATED WITH EACH OF THEM AS DESCRIBED ABOVE.
S1716
DETERMINE NEW PARAMETER CANDIDATES (a, ZMPrecpeaka, ZMPrecpeakb) ON THE BASIS OF (a, ZMPrecpeaka, ZMPrecpeakb) AND ERRORS ASSOCIATED WITH EACH OF INITIAL VALUE CANDIDATES IN THE VICINITY THEREOF.
RETURN

FIG.19

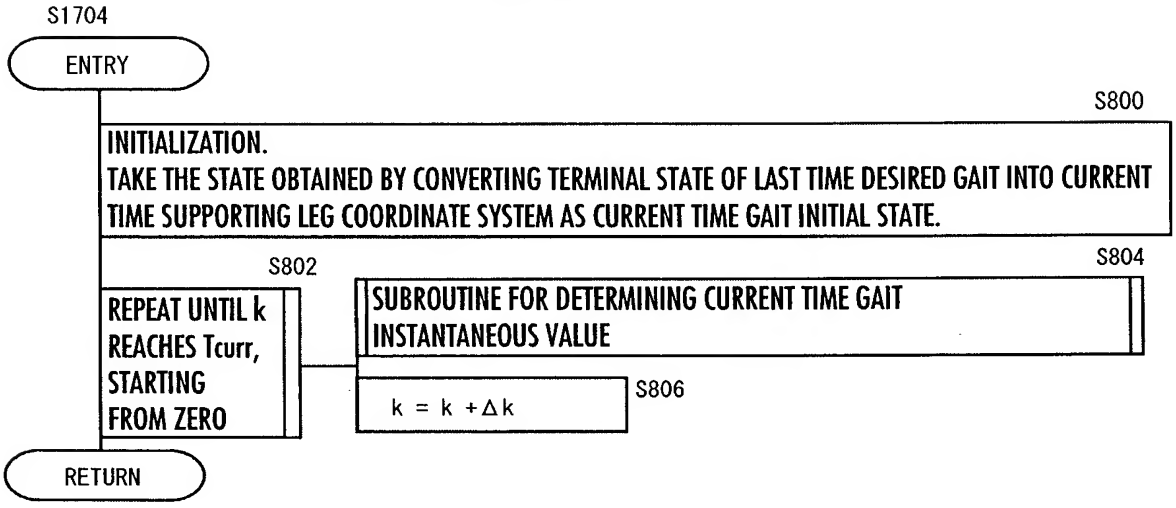

FIG.20

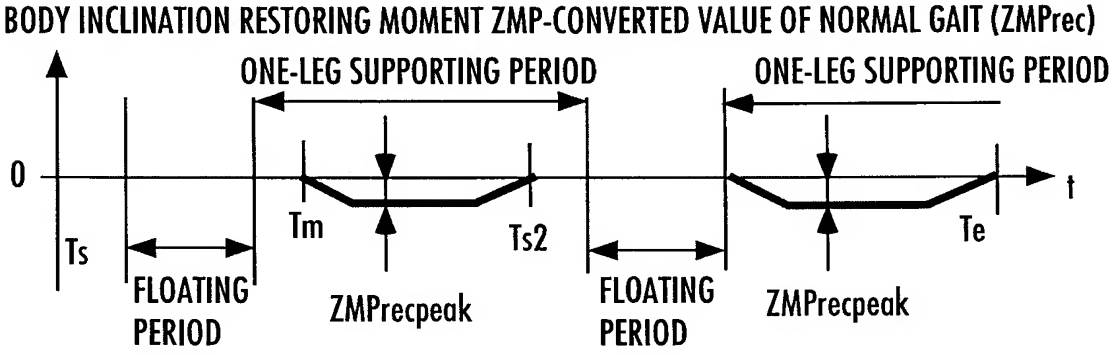

FIG.21

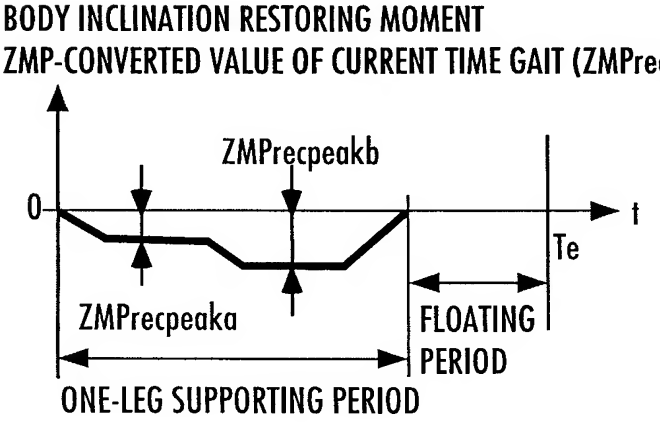

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FIG.9

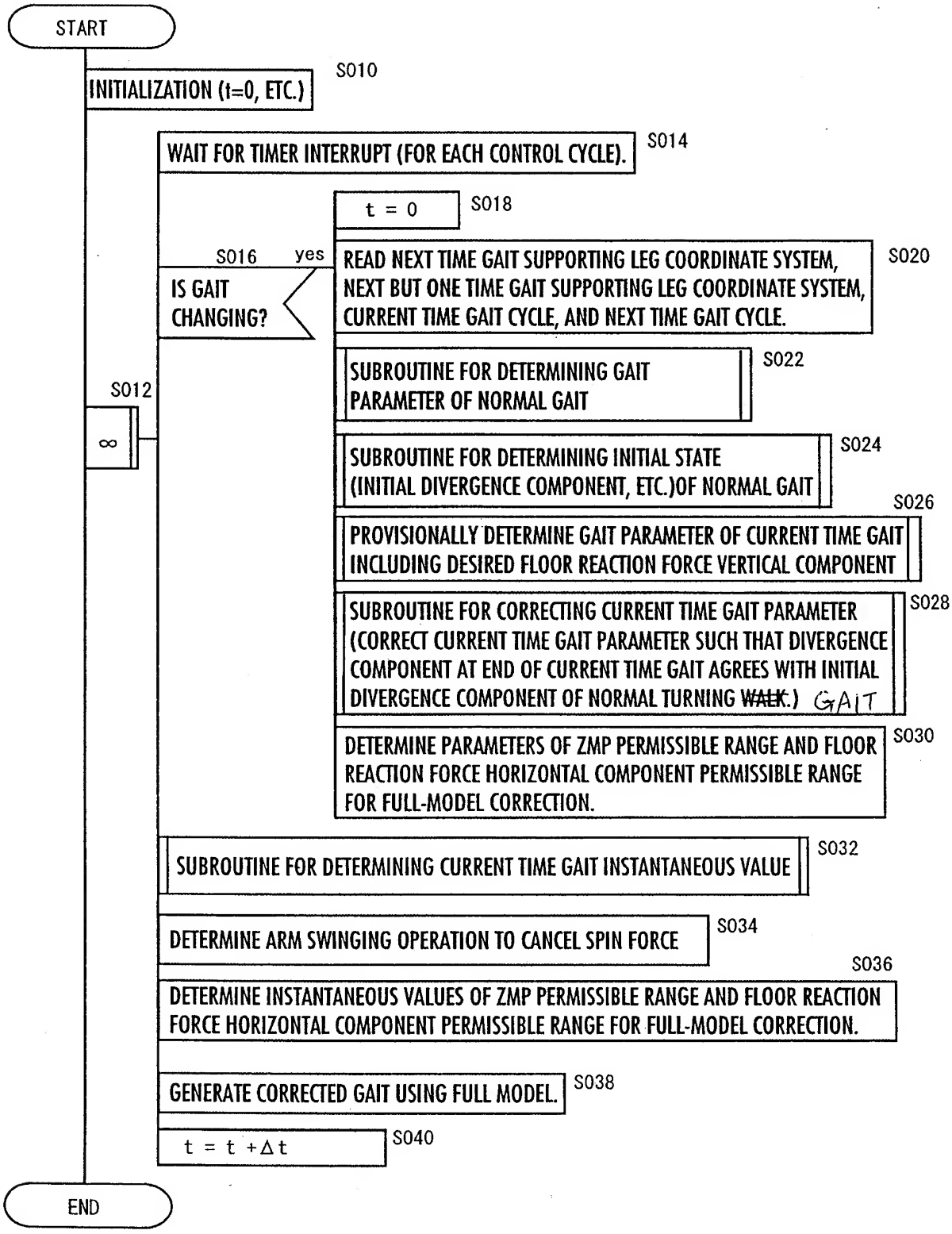
START
INITIALIZATION (t=0, ETC.)
S010
WAIT FOR TIMER INTERRUPT (FOR EACH CONTROL CYCLE).
S014
t = 0
S018
S016
yes
IS GAIT CHANGING?
READ NEXT TIME GAIT SUPPORTING LEG COORDINATE SYSTEM, NEXT BUT ONE TIME GAIT SUPPORTING LEG COORDINATE SYSTEM, CURRENT TIME GAIT CYCLE, AND NEXT TIME GAIT CYCLE.
S020
SUBROUTINE FOR DETERMINING GAIT PARAMETER OF NORMAL GAIT
S022
S012
∞
SUBROUTINE FOR DETERMINING INITIAL STATE (INITIAL DIVERGENCE COMPONENT, ETC.)OF NORMAL GAIT
S024
S026
PROVISIONALLY DETERMINE GAIT PARAMETER OF CURRENT TIME GAIT INCLUDING DESIRED FLOOR REACTION FORCE VERTICAL COMPONENT
SUBROUTINE FOR CORRECTING CURRENT TIME GAIT PARAMETER (CORRECT CURRENT TIME GAIT PARAMETER SUCH THAT DIVERGENCE COMPONENT AT END OF CURRENT TIME GAIT AGREES WITH INITIAL DIVERGENCE COMPONENT OF NORMAL TURNING ~~WALK~~.) GAIT
S028
DETERMINE PARAMETERS OF ZMP PERMISSIBLE RANGE AND FLOOR REACTION FORCE HORIZONTAL COMPONENT PERMISSIBLE RANGE FOR FULL-MODEL CORRECTION.
S030
SUBROUTINE FOR DETERMINING CURRENT TIME GAIT INSTANTANEOUS VALUE
S032
DETERMINE ARM SWINGING OPERATION TO CANCEL SPIN FORCE
S034
S036
DETERMINE INSTANTANEOUS VALUES OF ZMP PERMISSIBLE RANGE AND FLOOR REACTION FORCE HORIZONTAL COMPONENT PERMISSIBLE RANGE FOR FULL-MODEL CORRECTION.
GENERATE CORRECTED GAIT USING FULL MODEL.
S038
t = t +Δt
S040
END

FIG.11

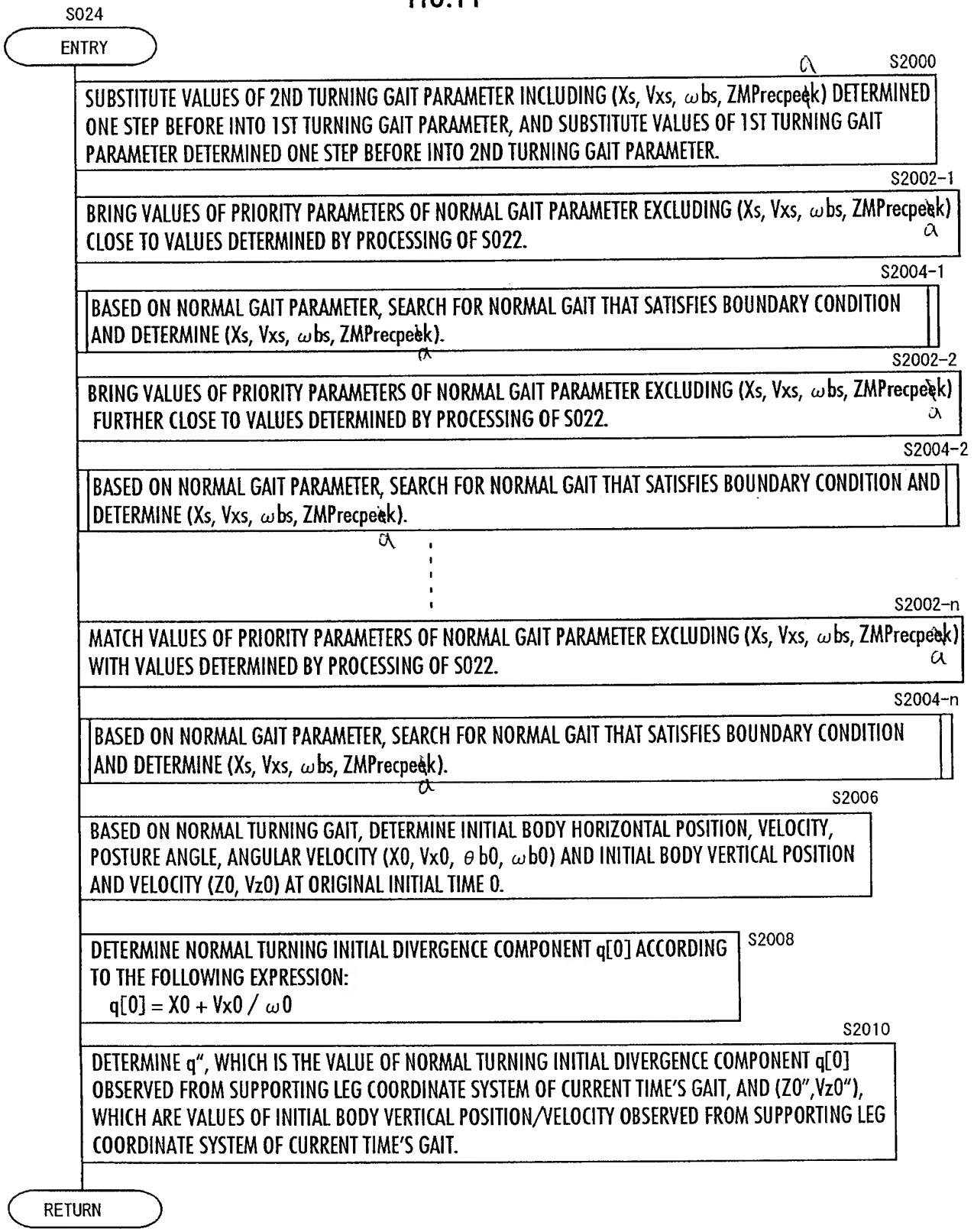
S024
ENTRY
S2000
SUBSTITUTE VALUES OF 2ND TURNING GAIT PARAMETER INCLUDING (Xs, Vxs, ωbs, ZMPrecpeek) DETERMINED ONE STEP BEFORE INTO 1ST TURNING GAIT PARAMETER, AND SUBSTITUTE VALUES OF 1ST TURNING GAIT PARAMETER DETERMINED ONE STEP BEFORE INTO 2ND TURNING GAIT PARAMETER.
S2002-1
BRING VALUES OF PRIORITY PARAMETERS OF NORMAL GAIT PARAMETER EXCLUDING (Xs, Vxs, ωbs, ZMPrecpeek) CLOSE TO VALUES DETERMINED BY PROCESSING OF S022.
S2004-1
BASED ON NORMAL GAIT PARAMETER, SEARCH FOR NORMAL GAIT THAT SATISFIES BOUNDARY CONDITION AND DETERMINE (Xs, Vxs, ωbs, ZMPrecpeek).
S2002-2
BRING VALUES OF PRIORITY PARAMETERS OF NORMAL GAIT PARAMETER EXCLUDING (Xs, Vxs, ωbs, ZMPrecpeek) FURTHER CLOSE TO VALUES DETERMINED BY PROCESSING OF S022.
S2004-2
BASED ON NORMAL GAIT PARAMETER, SEARCH FOR NORMAL GAIT THAT SATISFIES BOUNDARY CONDITION AND DETERMINE (Xs, Vxs, ωbs, ZMPrecpeek).
S2002-n
MATCH VALUES OF PRIORITY PARAMETERS OF NORMAL GAIT PARAMETER EXCLUDING (Xs, Vxs, ωbs, ZMPrecpeek) WITH VALUES DETERMINED BY PROCESSING OF S022.
S2004-n
BASED ON NORMAL GAIT PARAMETER, SEARCH FOR NORMAL GAIT THAT SATISFIES BOUNDARY CONDITION AND DETERMINE (Xs, Vxs, ωbs, ZMPrecpeek).
S2006
BASED ON NORMAL TURNING GAIT, DETERMINE INITIAL BODY HORIZONTAL POSITION, VELOCITY, POSTURE ANGLE, ANGULAR VELOCITY (X0, Vx0, θb0, ωb0) AND INITIAL BODY VERTICAL POSITION AND VELOCITY (Z0, Vz0) AT ORIGINAL INITIAL TIME 0.
S2008
DETERMINE NORMAL TURNING INITIAL DIVERGENCE COMPONENT q[0] ACCORDING TO THE FOLLOWING EXPRESSION:
q[0] = X0 + Vx0 / ω0
S2010
DETERMINE q", WHICH IS THE VALUE OF NORMAL TURNING INITIAL DIVERGENCE COMPONENT q[0] OBSERVED FROM SUPPORTING LEG COORDINATE SYSTEM OF CURRENT TIME'S GAIT, AND (Z0",Vz0"), WHICH ARE VALUES OF INITIAL BODY VERTICAL POSITION/VELOCITY OBSERVED FROM SUPPORTING LEG COORDINATE SYSTEM OF CURRENT TIME'S GAIT.
RETURN

FIG.12

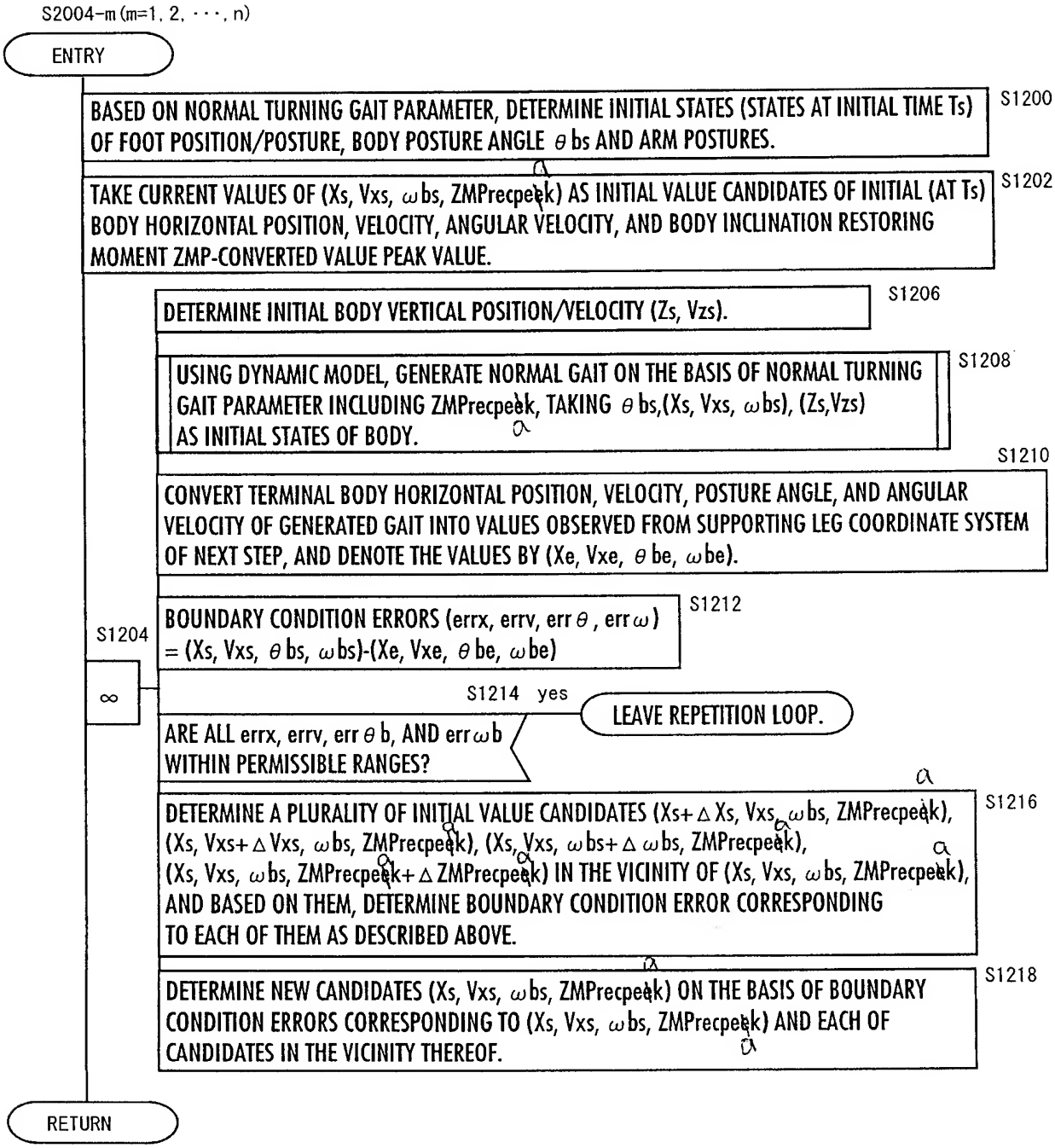
S2004-m (m=1, 2, ···, n)
ENTRY
BASED ON NORMAL TURNING GAIT PARAMETER, DETERMINE INITIAL STATES (STATES AT INITIAL TIME Ts) OF FOOT POSITION/POSTURE, BODY POSTURE ANGLE θbs AND ARM POSTURES.
S1200
TAKE CURRENT VALUES OF (Xs, Vxs, ωbs, ZMPrecpeek) AS INITIAL VALUE CANDIDATES OF INITIAL (AT Ts) BODY HORIZONTAL POSITION, VELOCITY, ANGULAR VELOCITY, AND BODY INCLINATION RESTORING MOMENT ZMP-CONVERTED VALUE PEAK VALUE.
S1202
DETERMINE INITIAL BODY VERTICAL POSITION/VELOCITY (Zs, Vzs).
S1206
USING DYNAMIC MODEL, GENERATE NORMAL GAIT ON THE BASIS OF NORMAL TURNING GAIT PARAMETER INCLUDING ZMPrecpeek, TAKING θbs,(Xs, Vxs, ωbs), (Zs,Vzs) AS INITIAL STATES OF BODY.
S1208
CONVERT TERMINAL BODY HORIZONTAL POSITION, VELOCITY, POSTURE ANGLE, AND ANGULAR VELOCITY OF GENERATED GAIT INTO VALUES OBSERVED FROM SUPPORTING LEG COORDINATE SYSTEM OF NEXT STEP, AND DENOTE THE VALUES BY (Xe, Vxe, θbe, ωbe).
S1210
BOUNDARY CONDITION ERRORS (errx, errv, errθ, errω) = (Xs, Vxs, θbs, ωbs)-(Xe, Vxe, θbe, ωbe)
S1212
S1204
∞
S1214 yes
LEAVE REPETITION LOOP.
ARE ALL errx, errv, errθb, AND errωb WITHIN PERMISSIBLE RANGES?
DETERMINE A PLURALITY OF INITIAL VALUE CANDIDATES (Xs+ΔXs, Vxs, ωbs, ZMPrecpeek), (Xs, Vxs+ΔVxs, ωbs, ZMPrecpeek), (Xs, Vxs, ωbs+Δωbs, ZMPrecpeek), (Xs, Vxs, ωbs, ZMPrecpeek+ΔZMPrecpeek) IN THE VICINITY OF (Xs, Vxs, ωbs, ZMPrecpeek), AND BASED ON THEM, DETERMINE BOUNDARY CONDITION ERROR CORRESPONDING TO EACH OF THEM AS DESCRIBED ABOVE.
S1216
DETERMINE NEW CANDIDATES (Xs, Vxs, ωbs, ZMPrecpeek) ON THE BASIS OF BOUNDARY CONDITION ERRORS CORRESPONDING TO (Xs, Vxs, ωbs, ZMPrecpeek) AND EACH OF CANDIDATES IN THE VICINITY THEREOF.
S1218
RETURN

FIG.16

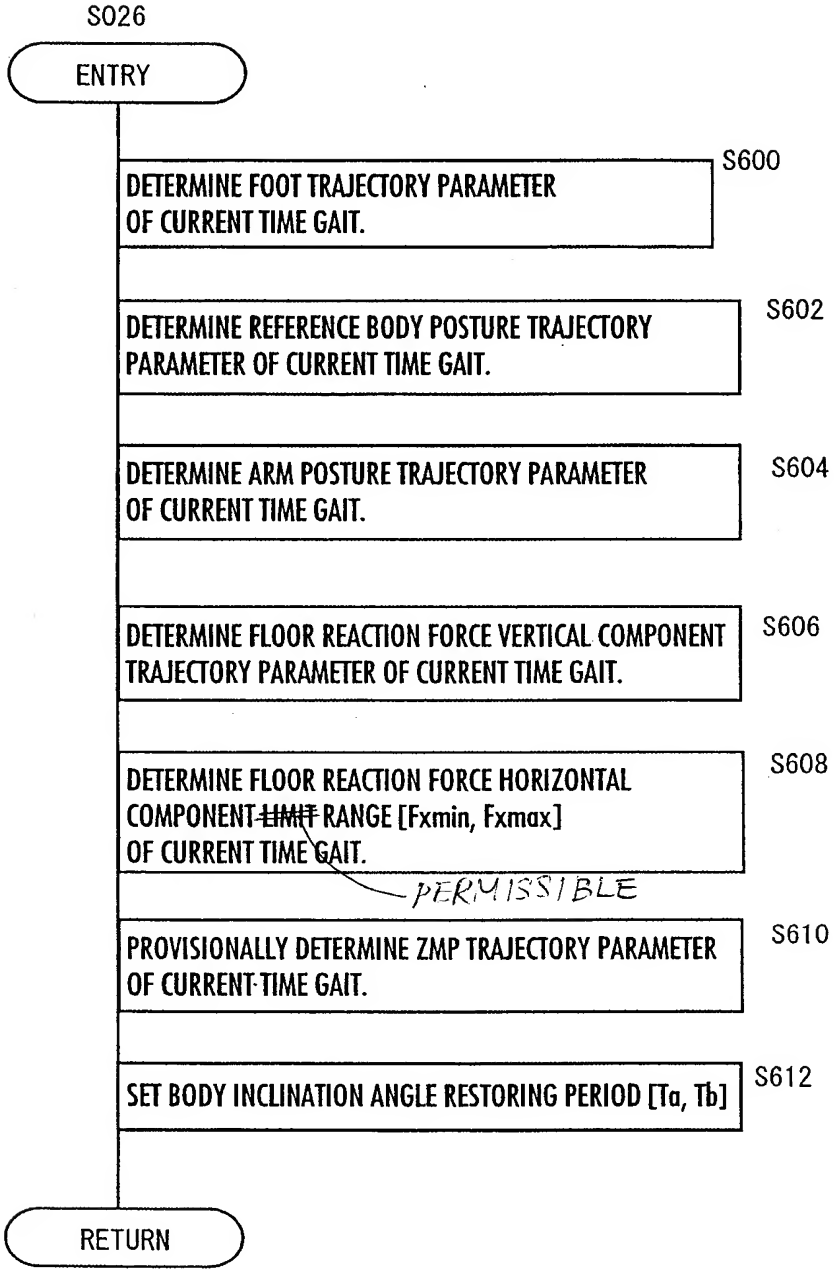
S026
ENTRY
DETERMINE FOOT TRAJECTORY PARAMETER OF CURRENT TIME GAIT.
S600
DETERMINE REFERENCE BODY POSTURE TRAJECTORY PARAMETER OF CURRENT TIME GAIT.
S602
DETERMINE ARM POSTURE TRAJECTORY PARAMETER OF CURRENT TIME GAIT.
S604
DETERMINE FLOOR REACTION FORCE VERTICAL COMPONENT TRAJECTORY PARAMETER OF CURRENT TIME GAIT.
S606
DETERMINE FLOOR REACTION FORCE HORIZONTAL COMPONENT ~~LIMIT~~ RANGE [Fxmin, Fxmax] OF CURRENT TIME GAIT.
PERMISSIBLE
S608
PROVISIONALLY DETERMINE ZMP TRAJECTORY PARAMETER OF CURRENT TIME GAIT.
S610
SET BODY INCLINATION ANGLE RESTORING PERIOD [Ta, Tb]
S612
RETURN

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FIG.18

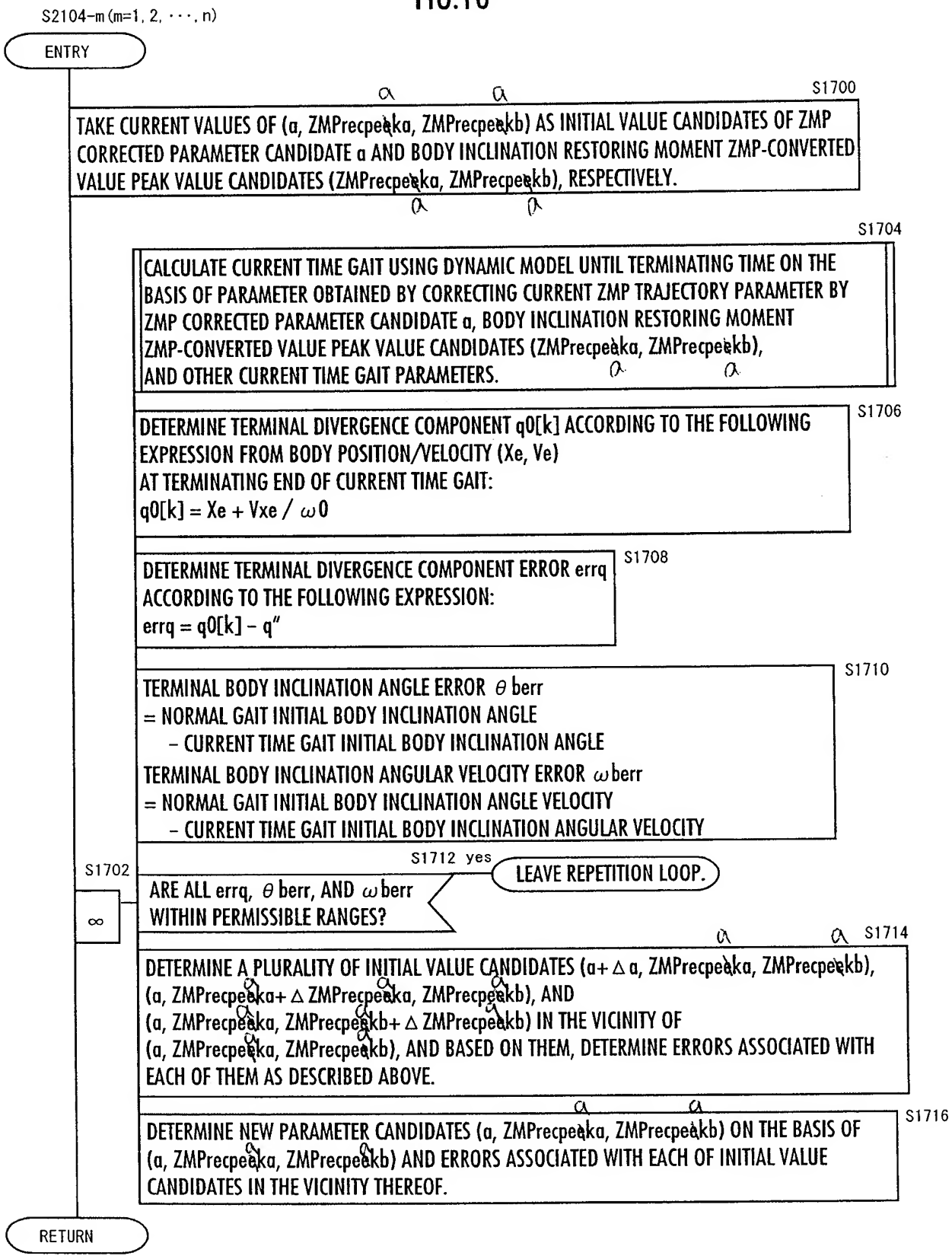
S2104-m(m=1, 2, ···, n)
ENTRY
S1700
TAKE CURRENT VALUES OF (a, ZMPrecpeaka, ZMPrecpeakb) AS INITIAL VALUE CANDIDATES OF ZMP CORRECTED PARAMETER CANDIDATE a AND BODY INCLINATION RESTORING MOMENT ZMP-CONVERTED VALUE PEAK VALUE CANDIDATES (ZMPrecpeaka, ZMPrecpeakb), RESPECTIVELY.
S1704
CALCULATE CURRENT TIME GAIT USING DYNAMIC MODEL UNTIL TERMINATING TIME ON THE BASIS OF PARAMETER OBTAINED BY CORRECTING CURRENT ZMP TRAJECTORY PARAMETER BY ZMP CORRECTED PARAMETER CANDIDATE a, BODY INCLINATION RESTORING MOMENT ZMP-CONVERTED VALUE PEAK VALUE CANDIDATES (ZMPrecpeaka, ZMPrecpeakb), AND OTHER CURRENT TIME GAIT PARAMETERS.
S1706
DETERMINE TERMINAL DIVERGENCE COMPONENT q0[k] ACCORDING TO THE FOLLOWING EXPRESSION FROM BODY POSITION/VELOCITY (Xe, Ve) AT TERMINATING END OF CURRENT TIME GAIT:
q0[k] = Xe + Vxe / ω0
S1708
DETERMINE TERMINAL DIVERGENCE COMPONENT ERROR errq ACCORDING TO THE FOLLOWING EXPRESSION:
errq = q0[k] − q''
S1710
TERMINAL BODY INCLINATION ANGLE ERROR θberr
= NORMAL GAIT INITIAL BODY INCLINATION ANGLE
− CURRENT TIME GAIT INITIAL BODY INCLINATION ANGLE
TERMINAL BODY INCLINATION ANGULAR VELOCITY ERROR ωberr
= NORMAL GAIT INITIAL BODY INCLINATION ANGLE VELOCITY
− CURRENT TIME GAIT INITIAL BODY INCLINATION ANGULAR VELOCITY
S1702
∞
S1712 yes
LEAVE REPETITION LOOP.
ARE ALL errq, θberr, AND ωberr WITHIN PERMISSIBLE RANGES?
S1714
DETERMINE A PLURALITY OF INITIAL VALUE CANDIDATES (a+Δa, ZMPrecpeaka, ZMPrecpeakb), (a, ZMPrecpeaka+Δ ZMPrecpeaka, ZMPrecpeakb), AND (a, ZMPrecpeaka, ZMPrecpeakb+Δ ZMPrecpeakb) IN THE VICINITY OF (a, ZMPrecpeaka, ZMPrecpeakb), AND BASED ON THEM, DETERMINE ERRORS ASSOCIATED WITH EACH OF THEM AS DESCRIBED ABOVE.
S1716
DETERMINE NEW PARAMETER CANDIDATES (a, ZMPrecpeaka, ZMPrecpeakb) ON THE BASIS OF (a, ZMPrecpeaka, ZMPrecpeakb) AND ERRORS ASSOCIATED WITH EACH OF INITIAL VALUE CANDIDATES IN THE VICINITY THEREOF.
RETURN

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FIG.19

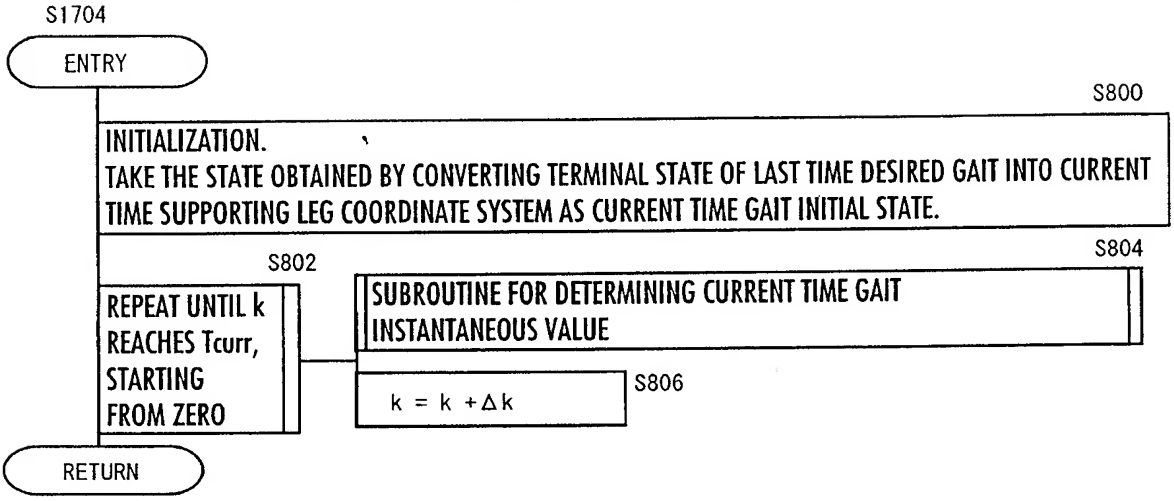

FIG.20

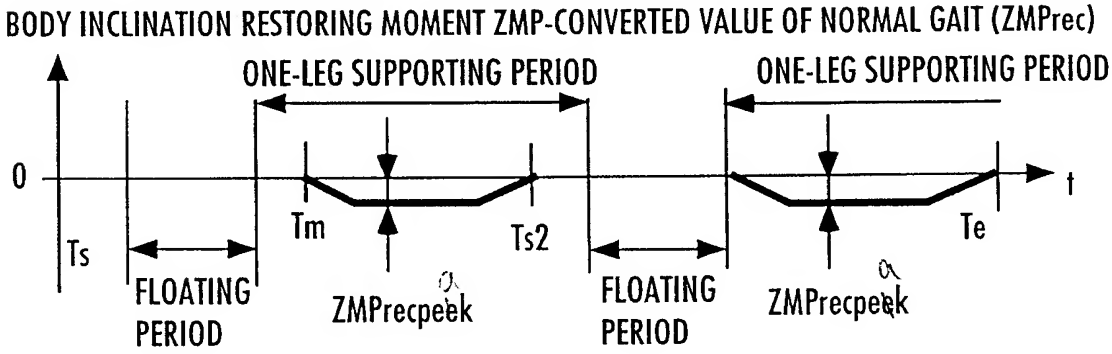

FIG.21